IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1-21. (Cancelled).

22. (Previously Presented) A method for optimal clustering of master-slave ad-hoc wireless network, said method comprising:

modeling all nodes in said wireless network in a star-shaped graphical format;

assigning a weight to said all nodes, wherein said weight is a function of defined optimization parameters comprising an amount of neighbor nodes of each said node, a power consumption of said node, and a maintenance overhead associated with said node;

assigning any of master and slave status to each node and connecting slave nodes in said wireless network to master nodes in said wireless network to form subgroups comprising a bounded size;

interconnecting said subgroups through non-center nodes in said wireless network to form a single cluster using any of:

connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup;

connecting two adjacent master nodes together; and

converting a slave node at said boundary to a master node and linking the converted node to any of slave nodes and master nodes in adjacent subgroups;

updating said weight of said all nodes at each occurrence of a removal of an edge of each

node marked as any of said master node and said slave node; and

minimizing the number of master nodes in said wireless network by the interconnection of said subgroups based on said defined optimization parameters.

23. (Previously Presented) The method of claim 22, wherein said each node is assigned any of master and slave status based on a degree of connectivity of said node with other unassigned nodes.

24. (Previously Presented) The method of claim 22, wherein the assignment of master and slave status is implemented by a single entity located at any of (i) within said cluster as one of said nodes in said cluster, and (ii) outside said cluster.

25. (Previously Presented) The method of claim 22, wherein a formation of said subgroups and said interconnection between said subgroups is based on said weight associated with said each node in said wireless network, wherein said weight of said each node depends upon said amount of neighbor nodes.

26. (Previously Presented) The method of claim 22, wherein the minimizing process is applied to the formation of a scatternet in a Bluetooth network.

27. (Previously Presented) The method of claim 26, wherein activities in the assigning and interconnecting processes are carried out in a distributed manner at each node further comprising:

assigning any of master and slave status by each node based on any of a master status, a slave status, and an unassigned status of all neighboring connected nodes to said node;

forming subgroups around each master node;

merging said subgroups by any of:

forming any of slave-slave bridges, slave-master bridges, and master-master bridges; and

forming additional master nodes.

28. (Previously Presented) The method of claim 22, wherein in said star-shaped graphical format, an edge between a pair of said nodes in said wireless network occurs if said pair of nodes are in radio range of each other, and wherein said each node discovers other nodes within said radio range in said wireless network using device discovery protocols.

29. (Previously Presented) The method of claim 22, further comprising minimizing the number of communication hops in said wireless network based on the minimal number of master nodes in said wireless network.

30. (Previously Presented) A computer program product comprising computer readable program code stored on a computer program readable storage medium embodied therein for performing a method for optimal clustering of master-slave ad-hoc wireless network, said method comprising:

modeling all nodes in said wireless network in a star-shaped graphical format;

assigning a weight to said all nodes, wherein said weight is a function of defined

optimization parameters comprising an amount of neighbor nodes of each said node, a power consumption of said node, and a maintenance overhead associated with said node;

assigning any of master and slave status to each node and connecting slave nodes in said wireless network to master nodes in said wireless network to form subgroups comprising a bounded size;

interconnecting said subgroups through non-center nodes in said wireless network to form a single cluster using any of:

connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup;

connecting two adjacent master nodes together; and

converting a slave node at said boundary to a master node and linking the converted node to any of slave nodes and master nodes in adjacent subgroups;

updating said weight of said all nodes at each occurrence of a removal of an edge of each node marked as any of said master node and said slave node; and

minimizing the number of master nodes in said wireless network by the interconnection of said subgroups based on said defined optimization parameters.

31. (Previously Presented) The computer program product of claim 30, wherein said each node is assigned any of master and slave status based on a degree of connectivity of said node with other unassigned nodes.

32. (Previously Presented) The computer program product of claim 30, wherein the assignment of master and slave status is implemented by a single entity located at any of (i)

within said cluster as one of said nodes in said cluster, and (ii) outside said cluster.

33. (Previously Presented) The computer program product of claim 30, wherein a formation of said subgroups and said interconnection between said subgroups is based on said weight associated with said each node in said wireless network, wherein said weight of said each node depends upon said amount of neighbor nodes.

34. (Previously Presented) The computer program product of claim 30, wherein the minimizing process is applied to the formation of a scatternet in a Bluetooth network.

35. (Previously Presented) The computer program product of claim 34, wherein activities in the assigning and interconnecting processes are carried out in a distributed manner at each node, and wherein said method further comprises:

assigning any of master and slave status by each node based on any of a master status, a slave status, and an unassigned status of all neighboring connected nodes to said node;

forming subgroups around each master node;

merging said subgroups by any of:

forming any of slave-slave bridges, slave-master bridges, and master-master bridges; and

forming additional master nodes.

36. (Previously Presented) The computer program product of claim 30, wherein in said star-shaped graphical format, an edge between a pair of said nodes in said wireless network occurs if

said pair of nodes are in radio range of each other, and wherein said each node discovers other nodes within said radio range in said wireless network using device discovery protocols.

37. (Previously Presented) The computer program product of claim 30, said method further comprising minimizing the number of communication hops in said wireless network based on the minimal number of master nodes in said wireless network.

38. (Previously Presented) A method for optimal clustering of master-slave ad-hoc wireless network, said method comprising:

modeling all nodes in said wireless network in a star-shaped graphical format;

assigning a weight to said all nodes, wherein said weight is a function of defined optimization parameters comprising an amount of neighbor nodes of each said node, a power consumption of said node, and a maintenance overhead associated with said node;

assigning any of master and slave status to each node and connecting slave nodes in said wireless network to master nodes in said wireless network to form subgroups comprising a bounded size;

interconnecting said subgroups through non-center nodes in said wireless network to form a single cluster using any of:

connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup;

connecting two adjacent master nodes together; and

converting a slave node at said boundary to a master node and linking the converted node to any of slave nodes and master nodes in adjacent subgroups;

updating said weight of said all nodes at each occurrence of a removal of an edge of each node marked as any of said master node and said slave node;

minimizing the number of master nodes in said wireless network by the interconnection of said subgroups based on said defined optimization parameters; and

minimizing the number of communication hops in said wireless network based on the minimal number of master nodes in said wireless network,

wherein a formation of said subgroups and said interconnection between said subgroups is based on said weight associated with said each node in said wireless network, wherein said weight of said each node depends upon said amount of neighbor nodes, and

wherein the minimizing processes are applied to the formation of a scatternet in a Bluetooth network.

39. (Previously Presented) The method of claim 38, wherein said each node is assigned any of master and slave status based on a degree of connectivity of said node with other unassigned nodes.

40. (Previously Presented) The method of claim 38, wherein the assignment of master and slave status is implemented by a single entity located at any of (i) within said cluster as one of said nodes in said cluster, and (ii) outside said cluster.

41. (Previously Presented) The method of claim 38, wherein activities in the assigning and interconnecting processes are carried out in a distributed manner at each node further comprising:

assigning any of master and slave status by each node based on any of a master status, a slave status, and an unassigned status of all neighboring connected nodes to said node;

forming subgroups around each master node;

merging said subgroups by any of:

forming any of slave-slave bridges, slave-master bridges, and master-master bridges; and

forming additional master nodes.

42. (Previously Presented) The method of claim 38, wherein in said star-shaped graphical format, an edge between a pair of said nodes in said wireless network occurs if said pair of nodes are in radio range of each other, and wherein said each node discovers other nodes within said radio range in said wireless network using device discovery protocols.